^{12}C(^{16}O,^{12}C) 1979Do01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, J. E. Purcell and C. G. Sheu	NP A968, 71 (2017)	1-Jan-2017

1979Do01: ^{12}C(^{16}O,^{12}C) E=315 MeV; measured σ(E,θ).

1994Su09: ^{12}C(^{16}O,^{12}C) E=28.5-33.5 MeV; measured magnetic substate population for ^{12}C*(4.44 MeV), deduced intermediate structure resonances.

1995Fr05: ^{12}C(^{16}O,^{12}C) E=99 MeV; measured Q-value spectra.

1996Fr09: ^{12}C(^{16}O,^{12}C) E=51-66 MeV; measured Q-value spectra.

2004Su10: ^{12}C(^{16}O,^{12}C) E=17.4-23 MeV; measured E_γ, I_γ (particle)γ coincidences.

2006Sz06: ^{12}C(^{16}O,^{12}C) E=62-124 MeV; measured particle spectra.

2011Ha23: ^{12}C(^{16}O,^{12}C) E=20,24,28 MeV, measured E(particle), I(particle,θ). Deduced $\sigma(\theta)$, optical potential parameters.

2014Oh04: XUNDL dataset compiled by TUNL, 2014.

The authors analyzed the Airy structures present in inelastic ^{16}O+^{12}C scattering to ^{12}C*(4.44 MeV) using 170-280 MeV ^{16}O beams, from the Jyvaskyla cyclotron. Scattered particles were detected at $\theta_{c.m.}$=7°−40° using a position sensitive ΔE-E Si detector telescope; at larger angles ($\theta_{c.m.}$>40°) a position sensitive gas proportional counter/Si detector ΔE-E array was used. Analyzed angular distributions for scattering to ^{12}C*(4.44 MeV: $J^\pi=2^+$) via an extended double folding coupled-channels model. The angular distributions are well reproduced with an emphasis on the large angle so-called rainbow region where diffraction effects and Airy structures are prominent. Discussed the couplings between elastic and inelastic components. See also (2015Ma12).

^{12}C Levels

E(level)	Γ
0	
4.44×10^3	
7.65×10^3	
9.64×10^3	
10.8×10^3 †	
14.1×10^3	
15.8×10^3 †	
21.6×10^3 †	
25.3×10^3 †	≈4 † MeV
26.7×10^3 †	≈4 † MeV

† From (1979Do01).